

Building a State's Global Competitive Advantage by Improving Its Finances: A System Dynamic Model Tailored for the Italian State

Pietro Sorci

Model-Based Public Planning, Policy Design and Management
University of Palermo, Italy
E-mail: p.sorci@studiosorci.com

Abstract

The present study analyzes and tests a new way to recover economy and public finances in time of crisis. An exclusive focus on State financial short-term stability risks to undermine the economic growth and to erode the social environment, thus it depletes the sources of State finances on the long-term. While a sustainable strategizing focuses on performance drivers that generate these last. Such approach in public strategizing is based on the assumption that State could increase its budgets by improving the organizational and legal framework in which private firms operate, in order to reduce their overhead costs for compliance of rules, and public facilities' inefficiencies. This improvement margin enables the national economic environment to be more globally competitive, and, consequently, to take advantage of new national and foreign investors and of existing firm's retention. By quantitatively linking a state organization's performance to that of private firms, the system dynamics model demonstrates how this eventually leads to an increase in financial resources for a government organization. In absence of such improvement, the model shows how delocalization would create a huge financial loss for the government: losses that public officials seem to ignore.

Keywords: *performance management, delocalization, sustainability, financial strategy, Italy, System dynamics.*

1. Introduction

The austerity policies, as they have been conceived in majority of countries to recover economy during the current crisis, present in the medium and long-term high social costs and a depletion of financial resources for State organization. Higher tax rates and less public services and investments reduce privates' resources to invest, and increase their costs. These factors deplete enterprises' economic potential on the long-term, and consequently future State's receipts. An exclusive focus on State's financial needs does not enable policy makers to orient their vision towards the valorization of drivers producing them.

Oppositely, the thesis developed in the present study starts from the assumption that an improvement margin of public institutions is possible to increase profitability of enterprises, and consequently, with a constant fiscal leverage, profitability of the State organizations. An effective public administration and an efficient legal framework provide to economic players good operational conditions and an additional global competitive advantage (De Soto 2001).

Complex and instable rules, long delays, expensive compliance in settling disputes and in obtaining authorization, weak property right protection, capital market inefficiency, bureaucracy, and lack of transparency are the factors responsible for what De Soto defines as "death capital" (De Soto 2001). In other words, human and material capital stocks that will never expand itself by mean of the multiplication process enabled by effective State's institutions.

A reduced amount of capital production affects not only the wealth of private, but also of public organizations, through taxation of first ones, in other words the country's global competitiveness. This could be defined as the effort to reach a country's economic development compatible with the level of social evolution of the country itself (Porter, 1990; Zanetti, 2006). At an international institutional level competitiveness is commonly defined as a "set of institutions, policies, and factors that determine the level of productivity of a country" (World Economic Forum, 2011) and, adopting a dynamic definition of the concept, is measured in regards of competitors and in terms of time variations.

In order to provide a first overview of the Italian global competitiveness, Table 1 illustrates a selection of indicators included in the Global Competitiveness Report, yearly calculated, since 2005, by the World Economic Forum (WEF). Results are in absolute values (first column) and in rank out of the 142 countries analyzed by the report (second column).

1st pillar: Institutions		
1.01 Property rights	4.2	71
1.07 Favoritism in decisions of gov. officials	2.4	119
1.08 Wastefulness of government spending	2.5	114
1.09 Burden of government regulation	2.1	140
1.10 Efficiency of legal framw. in settling disputes	2.6	133
1.11 Efficiency of legal framw. in challenging regs.	2.7	125
1.12 Transparency of government policymaking.. ..	3.2	135
1.19 Efficacy of corporate boards	4.0	120
1.21 Strength of investor protection, 0–10 (best)...	5.7	47
2nd pillar: Infrastructure		
2.01 Quality of overall infrastructure	4.0	79
2.02 Quality of roads.....	4.2	59
2.03 Quality of railroad infrastructure.....	3.5	43
2.04 Quality of port infrastructure.....	3.9	81
3rd pillar: Macroeconomic environment		
3.04 Interest rate spread, %*.....	7.0	92
3.05 General government debt, % GDP*.....	119.0 ..	138
6th pillar: Goods market efficiency		
6.04 Extent and effect of taxation.....	2.2	139
6.05 Total tax rate, % profits*.....	68.6	132
6.13 Burden of customs procedures	4.0	79
7th pillar: Labor market efficiency		
7.01 Cooperation in labor-employer relations.....	3.8	118
7.02 Flexibility of wage determination	3.2 ..	134
7.04 Hiring and firing practices	3.0 ..	126
8th pillar: Financial market development		
8.01 Availability of financial services.....	4.6	67
8.02 Affordability of financial services	3.5 ..	13
8.04 Ease of access to loans	2.2	112
10th pillar: Market size		
10.01 Domestic market size index, 1–7 (best)*... ..	5.5	10
10.02 Foreign market size index, 1–7 (best)*	5.9	15
11th pillar: Business sophistication		
11.01 Local supplier quantity	5.6	11
11.02 Local supplier quality.....	5.2	28
11.03 State of cluster development.....	5.4	2
11.04 Nature of competitive advantage.....	5.9	7
11.05 Value chain breadth	5.3	11
11.07 Production process sophistication	4.8	28
12th pillar: Innovation		
12.01 Capacity for innovation.....	4.0	26
12.03 Company spending on R&D.....	3.6	34
12.04 University-industry collaboration in R&D.....	3.5	79
12.05 Gov't procurement of advc tech products.....	3.0 ..	114
12.07 Utility patents granted/million pop. *	29.9 ..	25

Table 1 Selection of indicators of Global Competitiveness Index of Italy in 2011

Source: World Economic Forum (WEF)

The situation portrayed, shows two different sides of the Italian global competitiveness or, in other words, opposite behaviors of public and private institutions. Indicators show evidence of a certain sluggishness of public management (tax, administrative, infrastructural and legal framework) to the instances of economic operators.

This criticality results in higher costs sustained by market players in carrying on their activity within the national boundaries. Oppositely, on the side of private institutions such indicators show solid competitive advantages. This arises, first of all, from the breadth of value chain, then from the nature of competitive advantage and, as a distinguishing landmark of Italian industrial fabric, from the state of clusters development.

It is very singular in this context, as still referred by the Global Competitiveness Report (World Economic Forum, 2011) in a second survey, which factors like “crime and theft” and “inadequately educated workforce” gained a respective percentage of 1.8% and 1.2% as the most problematic factors for doing business in Italy. Such factors have been weighted up by the market players according to percentages given: Inefficient Government bureaucracy 19.0%; Tax rates 16.1%; Access to financing 13.6%; Restrictive labor regulation 10.7%; Inadequate supply of infrastructure 10.1%; Tax regulations 9.3%; Corruption 6.9%; Policy (not political) instability 6.8%.

These aspects, as perceived by national and international players, represent together the 92.5% of most problematic barriers for doing business in Italy, and doubtless, they erode, with additional costs, the profitability from operating in this country.

With regional agreements allowing the free mobility of people, enterprises and goods, nations face economic perils of delocalization: as companies choose to relocate abroad, national firms come under threat from foreign competition, while a country's economy can weaken from a loss of foreign investment. The state may suffer a huge loss in tax revenue while at the same time spend more on equalization grants. At this point, the only solution available to stabilizing public finances would be to increase taxes, but this would reduce the presence of market players even further. At the end of this long downward spiral, who would be left to pay taxes?

2. The phenomenon of “strategic asset-seeking” relocation and its threat to state finances

Commercial relocation represents the highest stage of internationalization of production and trade. From a country's perspective, it can be both active and passive if it involves, respectively, an exit or entry of firms operating in a country. Internationalization is realized through different modalities that can be divided into three broad categories: a) international trade; b) cooperation agreements; c) foreign direct investment (Beber, 1996).

International trade is the exchange of goods and services through national borders, and is usually the first method adopted by businesses that face the global market, as it implies a low degree of involvement and risk. International trade includes exports and imports of goods and services. It is estimated that over three-quarters of international trade is undertaken by multinational enterprises, with over a third based on intra-company transactions (Ietto-Gillies, 2005).

The second category consists of non-equity or cooperative agreements that do not involve investment in shares of companies. Such forms of internationalization may act in different ways (Ietto-Gillies, 2005): a) licensing; b) franchising; c) creating alliances; d) subcontracting. Foreign direct investment (FDI) is the most direct form of internationalization, as it leads an enterprise to inject capital into foreign companies, possibly with one or more partners (through mergers, acquisitions of equity stakes and joint ventures). FDI represents the most challenging and articulated mode of entry into foreign markets, as it requires a significant investment of resources and a long-term commitment.

Depending on the reasons FDI is undertaken, it may have any manner of effect on the economies of the investing country and the country receiving the investment. Such reasons can be grouped into four categories (Horstmann & Markusen, 1996; Markusen et al., 1996): 1) resource-seeking investments that provide privileged access to essential production inputs; 2) capital cost savings that aim to rationalize the structure of production by locating the activities of a value chain in countries where one can achieve a cost advantage; 3) market-seeking investments aimed at ensuring direct supervision of markets with a high potential for development in which a firm can exploit an internationalized competitive advantage over local businesses; 4) strategic asset-seeking investments motivated by the need to gain access to assets of complementary strategic importance.

Firms carrying out resource-seeking and cost-saving investments deconstruct their value chain through the relocation of activities. Such activities are generally labour-intensive, low-skilled jobs; otherwise, they require a significant procurement of resources in markets with ample and convenient supply.

Companies undertaking market-seeking investments usually create decentralized commercial structures in target countries and, if those countries are far apart, also establish their production activity. Moreover, these investments are typical of service companies because of territoriality and proximity features of the specific services provided.

Companies that invest to access assets of strategic importance decide to relocate, according to Bortolussi, Secretary of CGIA Mestre, for the following reasons: taxes, bureaucracy, high social security costs, logistical and infrastructural deficits, inefficiency of public administration, lack and/or high cost of credit to businesses, and energy costs. Often insurmountable obstacles lead entrepreneurs to move to neighbouring countries where the climate is perceived as more favourable to the company (CGIA Mestre, 2013).

The effects of relocations outside the categories of resource-seeking, market-seeking and cost savings are analyzed in this study. Such relocation is carried out mainly within the Western countries of the European Union, facilitated by the free exchange of goods owing to a wide and fast circulation of information, proximity, and economic and political stability of the relevant countries.

It is no coincidence that in 2011, out of 27,191 companies that relocated from Italy, 41.4% relocated in Western Europe (ICE, 2013).

The world's top six countries that have attracted the interest of Italian companies are France (2,562 companies), the United States (2,408), Germany (2,099), Romania (1,992), Spain (1,925) and the United Kingdom (1,856). China is in seventh place, with 1,103 Italian enterprises choosing to continue production in the Far East. Foreign companies with participation by Italian firms employ abroad 1,557,038 people and have earned a total turnover of 583,762 million euros (ICE, 2013). The regions most hit by the migration of

their local companies are in the North: 9,647 in Lombardy, 3,679 and 3,554 in Veneto and Emilia Romagna respectively, and 2,806 in Piedmont. All together they comprise over 72% of all businesses that have left Italy, thus confirming the proximity of countries as a key factor for asset-seeking delocalization.

Nearly half (48.3%) operate in the wholesale business; their assets mainly comprise commercial branches of Italian manufacturing enterprises. Such enterprises are followed by those in manufacturing (28.6%) and logistics sectors (6.2%) (ICSR, 2008).

The opportunities of internationalization and the related issue of relocation of production activities have been a topic of interest in the Italian legislature since 1990. Its interventions have been designed to address two specific and apparently contradictory needs: to promote the internationalization of Italian firms while at the same time avoiding an employment crisis caused by a massive migration abroad (Giusti, 2008). Such policies have been implemented at different times. In the first decade, the legislature's intentions were to simply incentivize the internationalization of Italian enterprises. The law n. 100/1990 established the Italian Society for Joint Ventures Abroad (SIMEST in the Italian acronym) to promote and ensure sustainable investments abroad and to invest, when necessary, capital (up to 25% for up to eight years) in manufacturing companies established abroad by Italian resident companies. SIMEST also facilitates easier market penetration that often precedes FDI through export credits and promotes participation in international tenders for the award of contracts in support of the "Made in Italy" label. a 20-year-old students

Under Law 57/2001, participation in enterprises established abroad has been further promoted by increasing incentives for the internationalization of enterprises, especially small and medium ones.

Law 56/2005 set up several "one-stop shops" in countries partnering with Italy for relevant commercial and industrial interests. These multi-purpose government offices were created to ensure and extend support to Italian companies operating in abroad with advice and guidance concerning the target country, even offering legal protection for their businesses including industrial and intellectual property rights.

Following these legislative efforts, the Italian legislature over the past decade, in order to avoid rising unemployment from company migration, seems oriented to establish certain conditions to contain the phenomenon and incentivize so-called "back shoring". Under this new logic, Law 80/2005 was enacted. It established that all the benefits described so far are valid under the condition of permanence within the national territory of the marketing department, and – research and development, as well as of a substantial part of production activities. This law, according to the new logic of "back shoring", provides incentives to Italian firms that have invested abroad and intend to reinvest in Italy: such companies will enjoy the same benefits and incentives that the law reserves to foreign companies that invest or move to Italy.

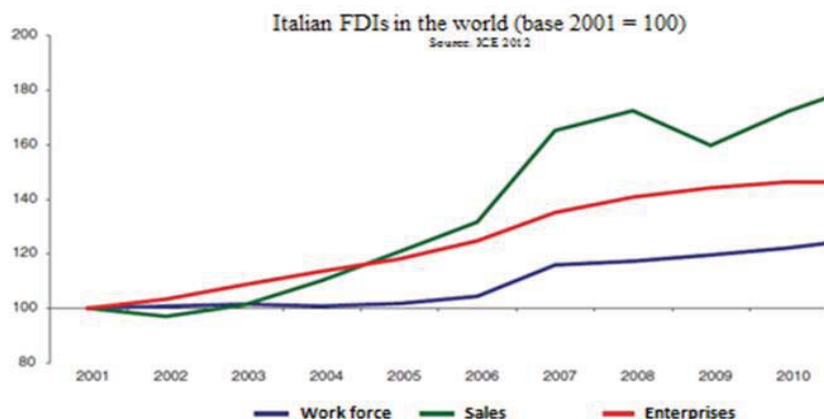


Figure 1 Dynamics of Italian FDIs in the World from 2001 to 2010.

Recently, the planning of incentives to limit relocation and foster the development of new activities is being undertaken in Italian regions according to the framework established by EU and the Italian government. The most relevant action has been the establishment of Urban Free Zones (ZFU). These

have been enabled by the Finance Act 2008 (Law 244/2007, Art. 2) with financial incentives provided from states and regions. These areas, in the south of Italy, will give new investors a tax exemption for 5-14 years (Weisz, 2013). Although over the past two decades the legislature has increased incentives to contain delocalization and foster so-called “back shoring”, delocalization seems likely to have been contained more by the current economic crisis than by the legislature’s interventions, as shown in the next figure.

From 2000 to 2011, Italian FDI rose by 10,714 units (65%, with an average yearly growth of 5.9%), 404,673 workforce units (35%) and 362,902 (164%) million euros in sales (ICE 2013). Figure 1 shows the pattern from 2001 to 2010. In 2011, Italian FDI rose merely 0.1% units (ICE, 2013).

Given that 41.4% of Italian FDI is affected in West Europe, whose countries have an economic sophistication and cost structure similar to Italy’s, this means that enterprises are more concerned about strategic assets offered by a country and not simply by financial aid as provided by the Italian legislature. This implies a change in perspective in public strategizing, more oriented toward the long term, trying to create a solid competitive advantage through structural intervention and not by palliative measures, and by means of a strong and fruitful relationship with the territory in which public organizations operate.

Italy’s sluggishness in investing resources in facilities and a more efficient organizational and legal framework, i.e., its strategic assets, has increased the threat to the survival of enterprises and their motivation to seek additional competitive advantages by moving to nations seen as more business friendly, thus reducing tax revenue. By demonstrating this last point quantitatively, the present study innovates the present knowledge about the causes and consequences of delocalization to government. So far the issue has been analyzed in its qualitative aspects (mainly by Beber, Ietto-Gilles, Horstmann, Markusen & Giusti) and through macroeconomic statistics concerning effects in terms of delocalized enterprises, FDI, total turnover and employees abroad. No study simulates delocalization’s effects on public finances by linking public organizations’ performance to that of private firms. This study intends to endow not only governments with a useful tool of analysis for the design and implementation of policies, but also communities with an objective evaluation tool of policy makers in order to foster their commitment and responsibility in public strategizing.

The following model simulation thus forecasts the financial loss that governments do not foresee. By analyzing the impact of state inefficiencies on the balance sheet and income statement of a common Italian enterprise, and simulating for the total of all Italian firms, the model will give an appreciable expectation of financial loss for the government, and the correspondent gain for the foreign country where enterprises relocate because of a better organizational and legal framework.

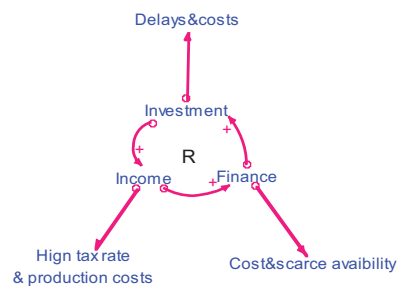


Figure 2 Effects of externalities on enterprise’s business cycle

3. Materials and methods

The case study provided is based on the System dynamics methodology, a new management tool which tries to identify and test policies for dynamic problems. Such problems are known to arise from the mutual interaction and iterative circular causalities among variables, concerning a particular issue. Nowadays, System dynamics covers large breadth of applications (social, managerial and economic systems) and bases itself on a multidisciplinary approach.

The model has been built and tested according to the following steps:

1) The Causal Loop Diagram (CLD) shows causal relationships between an enterprise’s business cycle, dysfunctions caused by an inefficient public organizational and legal framework, enterprise and FDI localization strategies, and their impact on public finances.

2) The Stock and Flow Diagram (SFD) shows analytically, according to the CLD scheme, all variables and their relationships expressed by equations. The model's building process has been divided into three sections. The first one simulates the four sectors of an enterprise's activity: a) goods production & distribution, b) financial dynamics, c) income statement and profit utilization, and d) investments and their output in terms of efficiency and product quality. The second section simulates the localization decision of a single enterprise according to a differential analysis of profits that can be generated in different localization scenarios. The third section simulates the tax income as a consequence of the enterprise's localization strategy.

3.1 The Causal loop diagram (CLD)

The business cycle is composed by three chronological phases: finance gathering, investment, and income generated by the business cycle. Such process is iterative and the reinforcing loop explains how the more is the initial finances, the more will be the investments and consequently profits.

Eventually, more profits increase finances of enterprise for a new cycle. Depending by the activity's localization, this iterative process could generate more or less resources, it depends by level of externalities (and their relative costs) generated by factors such as inefficient capital market, delays in obtaining authorizations, ever changing laws, higher taxes, and logistic costs. When such externalities are low, the process produces more and more financial resources at every cycle and, how showed in Figure 2, more are the flows managed by the firm, the more is its patrimonial consistence.

At this point the business cycle's CLD could be extended by taking into consideration the following factors: a) establishment of a common market; b) no economic and legal barriers to mobility of enterprises, goods and people within it; c) State's tax income; d) State's fiscal and investments policies.

Including the above mentioned factors, the CLD in Figure 3 now include not anymore one but four reinforcing loops, which are responsible for the behaviour of enterprise's mobility and, consequently, for diminution of State's tax income overtime.

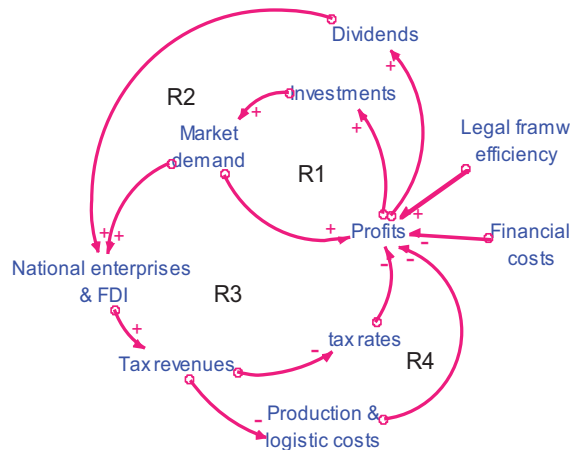


Figure 3 Causal Loop Diagram of enterprises' mobility and State's tax income

A) Reinforcing loop R1: lower profitability of enterprises located in Italy leads to lower investments, this last increase the incapability to match the market demand instances, thus reducing even more enterprise profitability.

B) Reinforcing loop R2: lower profitability of enterprises located in Italy decreases the dividends distributed to shareholders who decide to locate the activity in another country, this decision reduce State receipts, this last in order to "save the budget" increases tax rates, thus reducing even more the profits for investors.

C) Reinforcing loop R3: similar to the previous one, it concerns the decision of transferring the activity abroad because of incapability to satisfy the market demand in term of requested quality/price (which depends on the level of investments). This, eventually, would, decrease State's tax income and increase tax rates, thus reduce profits.

D) Reinforcing loop R4: a decrease in Italy's enterprise stock leads to a decrease of State's tax income, this last in order to "save the budget" invests less in infrastructure, thus increasing production and logistic costs, and decreasing profits for enterprises.

Since the localization strategy is drawn based on comparative costs-benefits analysis, the profits variable should not be considered in its absolute value but in comparison with its value obtainable by enterprises in foreign countries.

3.2 The stock and flow diagram (SFD)

In the above paragraph have been mentioned the necessary requirements beneath the localization strategy, and the way in which market players locate their activity according to benefits obtainable in the localization area. In reality, in a globalized market, operators study continuously opportunities for making their products the most competitive. Factors like technology, tax, and production costs related to the activity's localization play important roles in defining the enterprise's competitive strategy.

Decisions of staying or of moving abroad are taken based on simulation of differential benefits obtaining in term of a more competitive product; this expression is not strictly referred to low production costs but includes meanings like quality, possibility of differentiation, logistic costs, etc.

The following SFD model, portraying a small production enterprise operating in Italy, which explores the possibility to localize its activity abroad, provides a clear and useful explanation of dynamics described in the previous paragraph. The great value added of the following SFD, compared to other simulations, is that it takes into consideration quantitatively the iterative process of the enterprise's business cycle. Whether, as in most of the countries, it is quite uncommon to stumble upon public policy makers acquainted with short term consequences of their policies, this become exceptional when one focuses on long term results of them. This is possible only with the awareness of their cause-effects relationships on the iterative business cycle, which enterprises know very well. Public remains rather focused on instant relationships among variables as exemplified by Figure 4.

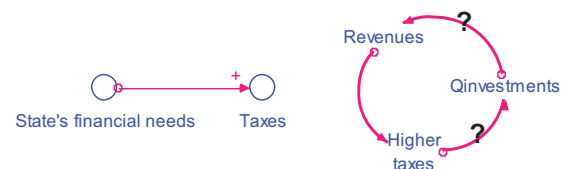


Figure 4 Public and private approach in policy design

The SFD portrays the activity of a small enterprise operating in Italy in order to focus on main dysfunctions that such enterprise faces up: a) High interest rates for financing investments and deposit advances; b) Delays in obtaining authorizations and cashing accounts receivables from Public administration; c) Logistic costs: availability of infrastructures (railways, motorways, ports, airports); d) Utilities costs; e) Costs for work unit and social security tax; f) Jurisdictional delay in settling commercial disputes; g) Tax and administrative compliance; h) Taxes on profits; i) Real estate taxes.

The enterprise produce a top quality food, with the average variable unit cost of 3,3 euro, while the average price unit is 4 euro. The enterprise invests each year in new equipment and R&D in order to obtain good results in terms of quality, product differentiation, sales price, and reputation.

The model is composed by three sections simulating: a) the enterprise's activity in Italy; b) the comparative analysis of benefits and its decision to move abroad; c) the tax income performance of the Italian State compared to the foreign one.

In order to simplify as much as possible the description of the model, the enterprise activity simulated has been split into four sectors: a) Goods production & distribution; b) Financial dynamics; c) Income statement & profits' utilization; d) Investments and their outputs in terms of efficiency and product quality.

a) Goods production & distribution

The following model's sector includes all variables and dynamics involved in the production process. The enterprise fulfills by shipment products requested by the market (an average of 38,462 per week); the production is fashioned according to the product quantity desired in inventory (100,000 units). Row material is ordered according to the desired quantity of the same inventory (150,000). Electricity consumption is fixed to 77 MWh per week at the price of 192 €/MWh (Confindustria, 2012). The productivity of total workforce (production, logistic, maintenance, administrative) has been set to 1,154 products per week, its cost to 1,800 euro plus 750 euro of social security tax.

Shipment costs for ordering row materials and shipping final products has been set considering a cost per km of 0.626 euro (including tolls, driver and fuel costs in Italy). The average transportation has been set as 241 km for row material and 1,228 for the final product (because of exportation). The average container filling is 4,200 products. Total administrative expenses have been set to 350,000 euro per year (6,731 per week).

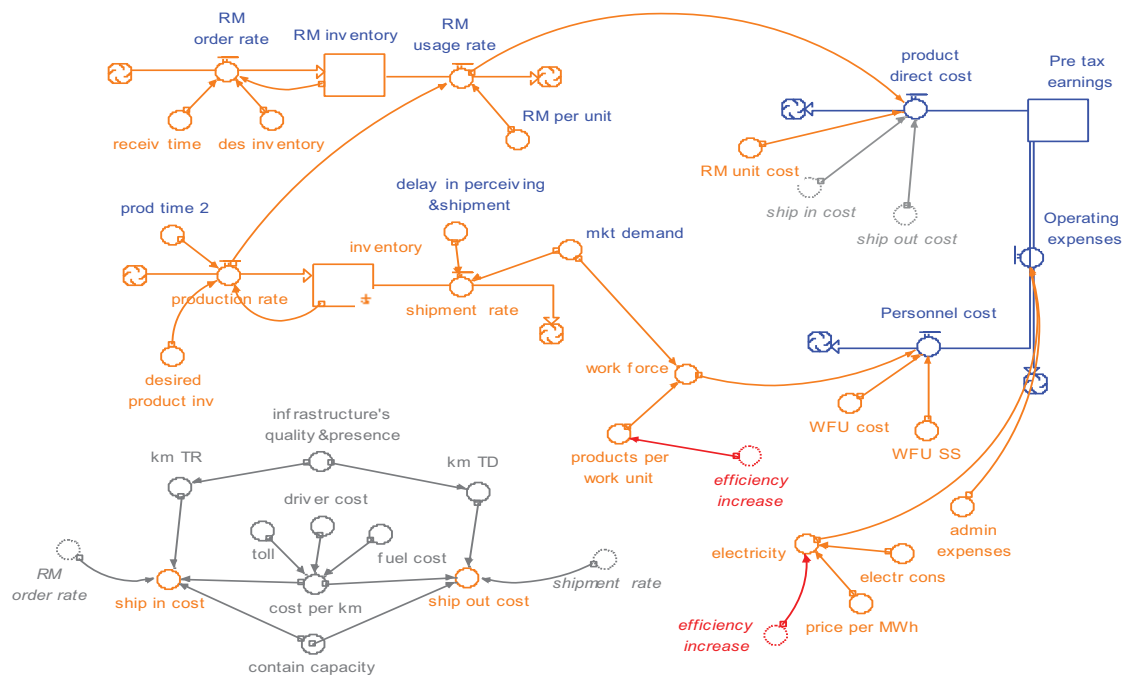


Figure 5 Sector of goods production & distribution

b) Financial dynamics

Enterprise's invoiced sales are cashed at different times, depending on terms and conditions established with the customer, on delays in cashing from some clients, and on difficulty to cash credits through commercial disputes. The 30% of sales is cashed immediately. The balance collection proceeds along three ways: the 40% is cashed within 8 weeks, the 45% is cashed through six months banks' anticipations, the 15% of turnover proceeds along, in the worst case, a commercial case for its collection.

The last two ways are extremely costly in term of interest (anticipation) and time (1210 days the average duration of a commercial case in Italy⁸).

⁸Source: ADN Kronos 2012

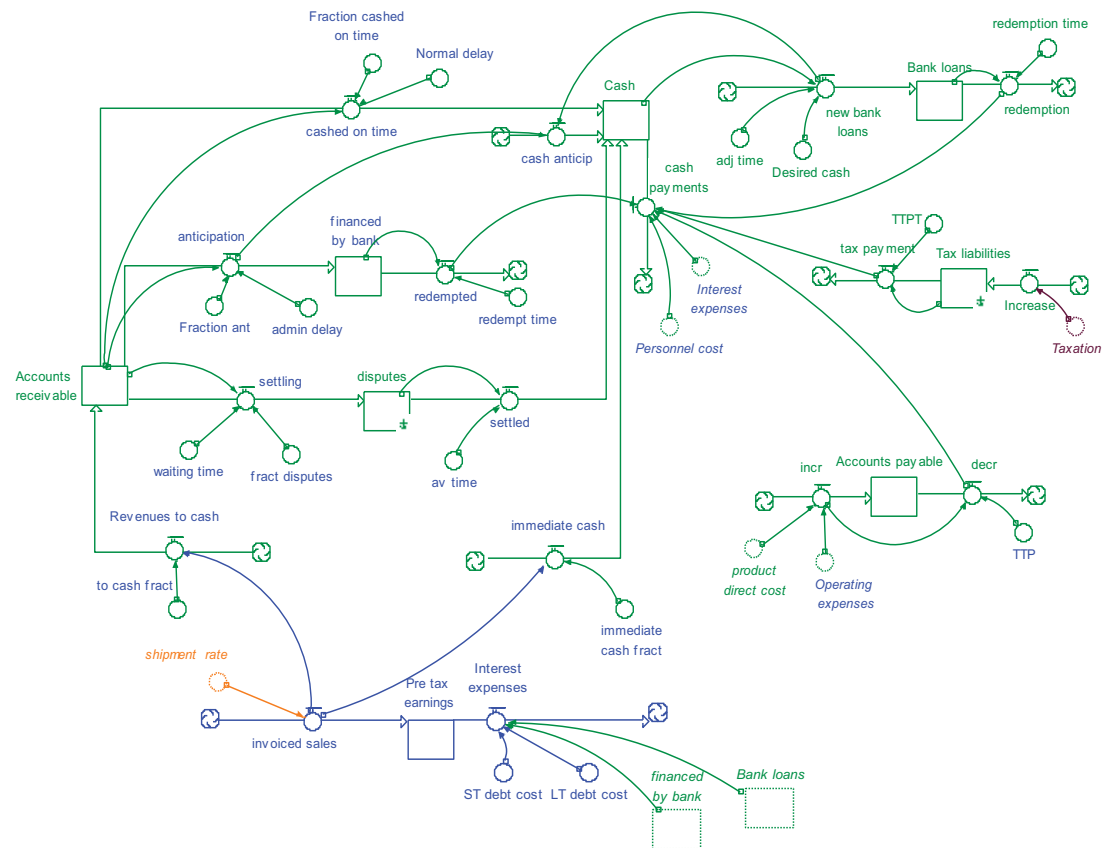


Figure 6 Sector of enterprise' financial dynamics

While the sales' encashment increases cash, this last is also reduced by payments, at their redemption time, of product costs, personnel cost, tax liabilities, interest expenses, redemption of bank loans, and anticipated invoices. In addition, the model includes the dynamics of bank loans' subscription when the cash stock decrease under the desired minimum amount (100,000 euro). Bank loans and anticipations affect the enterprise's profitability through interest paid on both types of financing.

c) Income statement & profits' utilization

This model's sector reproduces also the net profit calculation in accordance with the current laws concerning the income statement formulation. The taxation outflow originates from the stock titled "pretax earnings", after subtracting all costs and expenses of the enterprise.

In Italy, taxation includes mainly three types of taxes: a) IRES , tax rate on company's profits, nowadays worth 27,5% of pre-tax earnings; b) IRAP , a tax rate of 3,9% on a taxable basis made up of pretax earnings, personnel cost, and part of interest expenses; d) IMU, a tax rate on real state value oscillating between 0.7% and 1% of such value.

As showed by Figure 7, profits are accumulated in the stock “retained earnings” and, after passing the budget (in Italy by 30th of April), the shareholders’ meeting approves the destination of earnings. In the model a 40% of them are distributes as dividends, a 50% are allocated for investment and the remaining 10% for increasing the stock of cash.

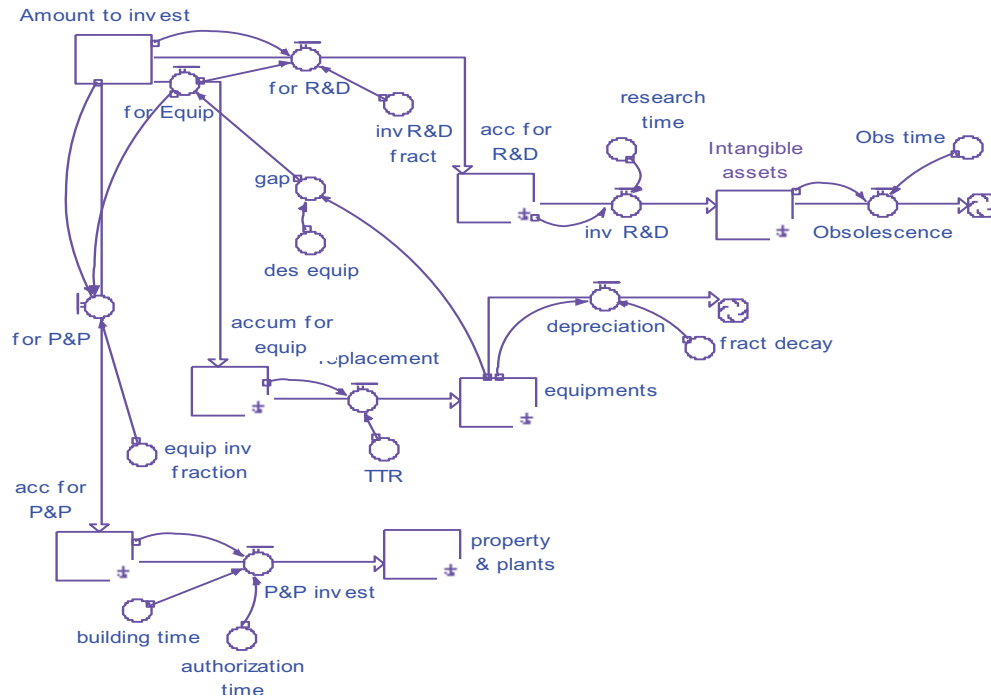


Figure 7 Profits' distribution dynamics

d) Investments in assets and their output of efficiency and product quality

The dynamics of investments in tangible and intangible assets has been included in the model since it represents the link between presents results and future perspectives, based on the asset's quantity and quality. Such link, quite often missing in the strategizing process of a State organization, allows the present model to reproduce the iterative process showed in the above Causal Loop Diagram, with extraordinary correspondence to the reality.

Earnings allocated for the investment, in the measure of 50% as approved by the shareholders' meeting, are collected and divided to effect three types of investments: a) replacement of equipment according to their depreciation of 10% per year; b) 85% of the remaining sum is invested in R&D; c) the rest in plants efficiency.

Except for equipment's replacement, investment activity is affected by delays, from 52 weeks, research time for appreciable research's result, to 3 years, average time elapsed to obtain all authorizations to build/change an industrial plant.

Outputs of investment's activity have been synthesized by two variables: a) quality increase: for intangible assets, it affects the price premium that customers recognize to a more qualitative product; b) efficiency increase; for plant's investments, it influences variables like workforce productivity and utilities' cost.

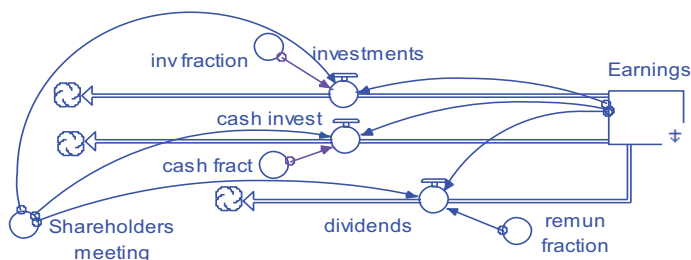


Figure 8 Sector of asset investments and their outputs

3.3 Comparative analysis of benefits and the decision to move abroad

As mentioned before, enterprises constantly do comparative localization costs analysis in order to make their products more competitive in term of cost and quality, and to obtain more benefits in terms of dividends and investments. Such analyses are done by simulations of possible additional benefits that enterprises could reach by being localized abroad.

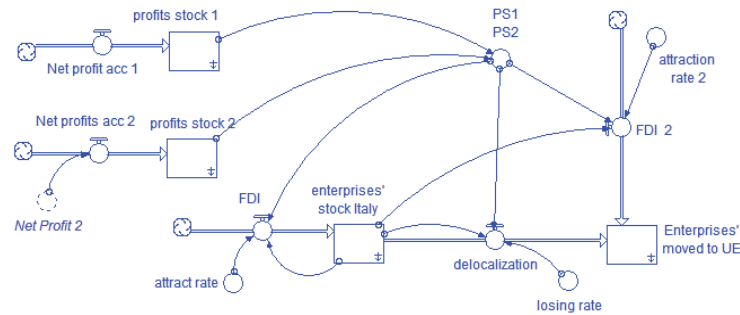


Figure 9 Entrepreneur's and FDI's localization model

In order to reproduce so, in this paragraph enterprise's activity abroad has been simulated considering as much raw material consumption and cost per unit, technology, administrative expenses, workforce productivity, as those of paragraph 3.2 concerning the national enterprise. The present model's section has also the same structure of that described in paragraph 3.2. Thus, in the comparative simulation enterprise takes into consideration only the dysfunctional factors mentioned in this chapter, whose Table 2 reports both the values for Italy and for the foreign countries benchmarked by the enterprise (Austria and Germany because of their proximity to Italy and their appreciable State's efficiency).

According to the previous variables list (that not pretends to be exhaustive) the entrepreneur takes into consideration the opportunity to delocalizing abroad. It deepens its comparative analysis for a short or long period of time depending on his social commitments, on personal reasons, and on amount of differential benefits that he could achieve by delocalization. This last variable is included in the following model section in Figure 9 (PS1/PS2), and acts as a pressure factor on entrepreneur's mind on the following way: when profits he will produce in Italy will be 20% less than those in a country 200-300 km far from home, the psychological threshold will be overcome and he will eventually delocalize.

Dynamics of FDI work in an easier fashion. After a deep what-if analysis of the social-economic environment and the benefits offered by States of a concerned area, FDI move in the State that offer a higher marginal benefit. In the model FDI increase either the stock of Italy's enterprises or that of enterprises moved to UE. Attraction and losing rates defines the rapidity of movement according to such marginal benefits. Stock of Italy's enterprises has been set to the initial value of 223,494. This is the number of enterprises with more than 19 employees in 2012 (ISTAT, 2013). The model does not include, because not of concern, the dynamics of Italian enterprises' birth rate.

Variables used for differential analysis			
Variables' list	units	ITALY	EU (A/D)
Interest rates on long term loans	%	6,24	3,49
Interest rate deposit advances	%	4,86	2,56
Time to obtain authorization	days	730	80
Time to cash from public organization	days	193-269	45
Infrastructure quality and availability	0-1	0,9	1
Tolls per km	eur	0,136	0
Fuel cost (per liter)	eur	1,76	1,50
Cost of power per MWh	eur	192	125
Salary per work unit (per month)	eur	1800	2100
Social security per work unit (per month)	days	705	462
Av. time to settle commercial disputes	days	1210	273
Time of tax and bureaucracy compliance	days	119	70
Tax on profits	%	32*	25
Real state tax	% EV	0,01	0,005**

* It includes IRAP rate ** Estimation

Table 2 Parameters included in profits' differential analysis

3.4 Tax income performance of the Italian State

Third section of the model includes the impact of the enterprises' localization strategy on State finances. The left side of section provides a useful comparison of fiscal policy effectiveness between taxes collected from Italian State and those from the foreign one, keeping constant the stock of enterprises. Instead, the right side of sector, including dynamics of enterprises' delocalization and FDI flows, quantifies Italy's tax income losses with the current fiscal policies.

This is the focus point of the model. It suggests to Italian State the adoption of a new strategizing approach in order to implement sustainable financial policies. So far, the change in the strategic scenario, caused by the EU economic and political integration, has not been taken into account seriously. By blindly pursuing this way, the State will loose competitiveness, finances, and welfare.

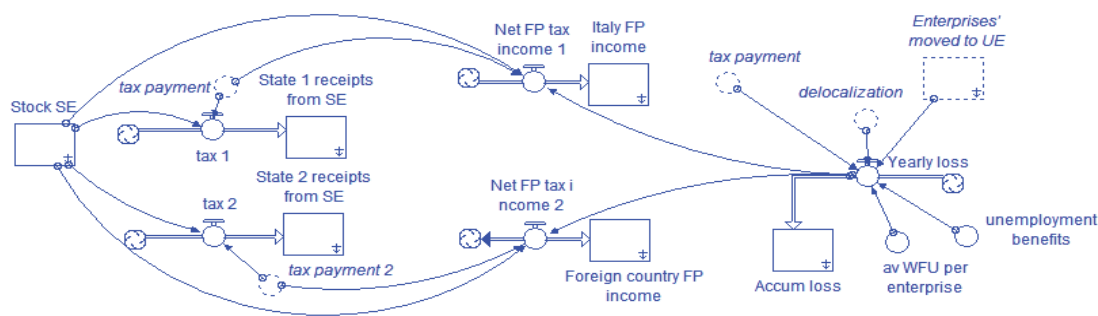


Figure 10 Italy's fiscal policy effectiveness & tax income losses

4. Results

4.1. The enterprise's localization strategy

Paragraph 3.3 described how factors listed in Table 2 can affect an enterprise's profitability not only in the short term but also in the long run when one considers the process displayed in Figure 2. This is due to the fact that enterprise, being an institution that operates overtime in order to satisfy efficiently and effectively human needs, seeks to achieve such mission through its investments activity. An enterprise that invests less, for instance, will not be able to operate according to its mission and in the end will lose customers, and profits. This explains the reason why enterprises are oriented in seeking a long term competitive advantages, and the failure's risk of public fiscal policies "one shot" that do not take into consideration the iterative dynamics of enterprises' activity.

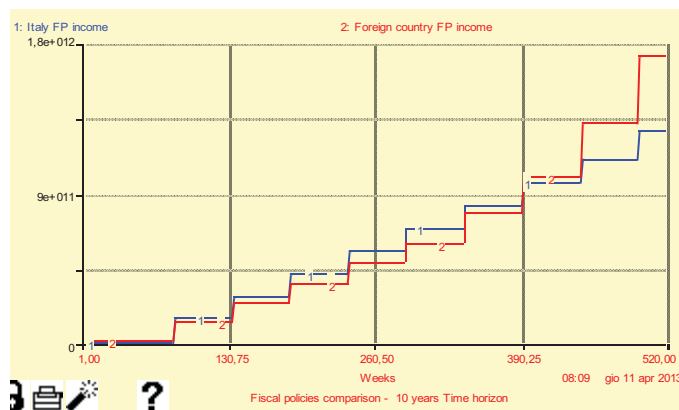


Figure 11 Profits' stock comparison for alternative scenarios

The model includes the enterprise's decision to delocalize abroad in order to seek any competitive margin in the supply of products. As mentioned above, enterprises do simulations to know whether they can

satisfy, with the current localization, market requirements, and face up global competition. Simulation of profits' stock, which the enterprise could produce in Italy (blue curve) and abroad (red curve), during their simulation period, is illustrated by Figure 11.

Additional profits for the enterprise mean higher investments, and shareholders' remuneration. Such opportunity acts as a pressure factor on entrepreneur's mind by the following way: in the model, when profits produced in Italy are 15% less than those in the delocalization scenario, the entrepreneur's psychological threshold will be overcome and he will eventually delocalize, thus reducing the national enterprises' stock.

4.2 Tax income policy performance of the Italian State

As mentioned above, the model was built to forecast the financial loss that governments do not expect as a result of delocalization. The previous paragraph illustrated not only the impact of government inefficiencies on the profits of a common national enterprise, but also how enterprises decide to relocate. By simulating for the total number Italian enterprises (with more than 19 employees), using the model's sector displayed in paragraph 3.4, the model provides an appreciable expectation of financial loss for the government and a correspondent gain for the foreign country with a better organizational and legal framework to where enterprises relocate.

This paragraph thus describes the impact of the enterprises' localization strategy on State finances. Figure 12 illustrates tax policy performances of the Italian State and that of delocalization by adopting the current mental model of Italian policy makers in public strategizing. This comparative test has been performed on the same enterprises' stock (223,494 enterprises) and in hypothesis of absence of mobility. The graph shows tax income's stock accumulated by the Italian and the foreign State during a period of seven years.

The Italian State performance (blue curve) seems to be better for State's finances. At the end of the period the Italian States cashes additional receipts for almost 100 billion of euro. However, has it been adopted a correct strategic horizon? Is such policy sustainable?

Figure 13 shows how, adopting a wider strategic horizon (beyond the geographic boundaries), and focusing correctly on enterprises activity, the current Italian organizational, legal and framework is unsustainable. Because of delocalization, the yearly State's financial loss, given for each delocalized enterprise by absence of tax income and more equalization grants for fired employees, grows more and more.

Policy sustainability is a value that has to be assessed on the long term. Thus, the model simulation's horizon has been extended from seven to ten years to compare the long term performance of fiscal policy between the Italian and the foreign States. Starting from the same enterprises' stock, Figure 13 shows the receipts accumulation from both fiscal policies.

The Italian State tax income (blue curve) is, in the short term, higher than that of the foreign State, then is overcome in the end by that of the last one. At the end of year 10, the foreign State has cashed 462 billion of euro more than the Italian State.

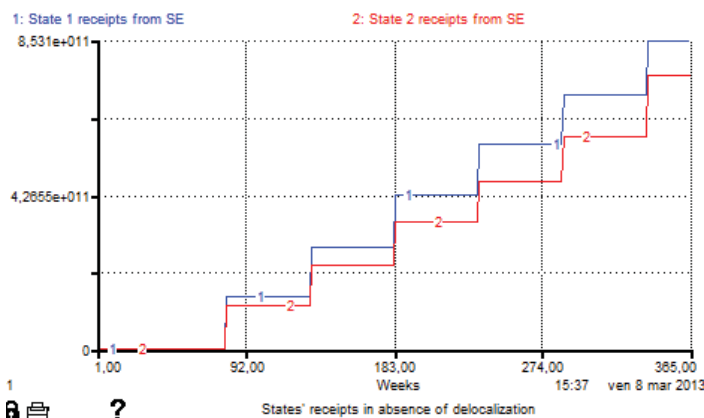


Figure 12 Italian tax income performance in absence of delocalization

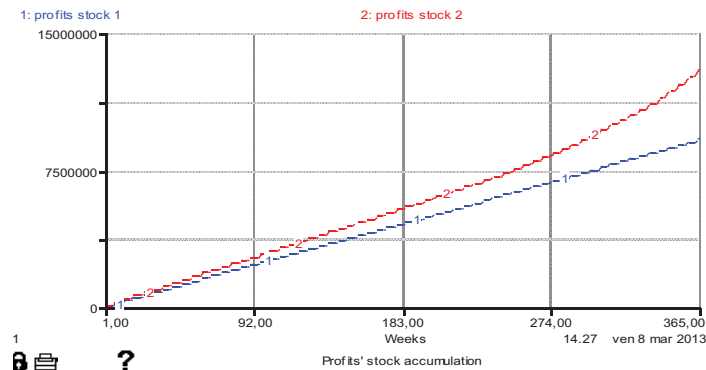


Figure 13 Tax incomes comparison in presence of delocalization. Ten years' horizon

5. Discussion

As shown by the case tailored for the Italian state, the inability to sustain an increase in taxes and reduction of public services and investments, policies adopted by several countries, can be traced to assumptions in their current designs: a) enterprise taxation does not affect competitiveness in terms of final product price and investments; b) the level of infrastructure and the public legal and administrative context has no effect on production costs and the financial resources of enterprises; c) delocalization is an irrelevant phenomenon because the presence of enterprises is stable; d) the tax pressure is justified by the state's financial needs; e) strategic and operative benchmarking with other countries can be neglected; f) sensitive analysis of policies to set the optimal point of tax yield according to each enterprise's fiscal capacity and global competitiveness is unnecessary.

The public strategizing process should always start from the recipients of public organizations' mission (Simon, 1947; Gulick et al., 1937). In the specific case, this means to create the favorable conditions in which they can develop, by improving the organizational and legal framework for them, since its recipients are at the same time its source of finances to operate for its institutional purposes. This eventually would lead to an increase in financial resources for State organization by taxation of larger profits of private firms and less expenditures for unemployment benefits and equalization grants.

6. Conclusion

The model has tested the effectiveness of a "co-strategy", i.e., the strategy of a territory's development through collaboration between the state and other economic entities. Government strategy must be compared and harmonized with other entities to create successful conditions for both. Such a vision, in terms of a state's programming cycle, is featured by the following elements:

a) Governmental focus on strategic-resource assets for the country's economic development and additional financial resources for the state. The underlying strategic horizon is evidently oriented for the long term since it is related to assets and not financial resources, e.g., tax revenue.

b) Policy implementation to achieve development of such strategic assets (performance drivers);

c) Improvement and enrichment of society by "cash flows" of investments in strategic assets (end results). Financial results are implemented to consolidate government financial accounts and invested once again, by reiteration of the process, in strategic resources, thus producing even more appreciable end results.

In the case tailored on the Italian State, in lack of the so called "co-strategy" model's quantitative results - referred to a stock of 223,494 enterprises, and under the hypotheses of an average workforce of 30 units per enterprise and fiscal leverage's stability - show in a time horizon of 10 years a financial damage for the Italian State of about 462 billion of Euro, the 29.5% of national GDP, the 23.2% of public debt in 2012 (Istat, 2013).

The model, by dynamically including enterprises' activity, demonstrates that the wealth of private institutions cannot anymore be considered as independent variable in public strategizing. Consequently, the success of public policies pass undoubtedly by the valorization of collaboration with private firms for co-creating their global competitive advantage, and more widely that of the country in which they operate.

Otherwise, by the absence of such collaboration, long-term orientation in strategizing, and a wider policy's horizon, State organization risks to create unconsciously a huge harm to the whole society.

Ultimately, the use of simulation models and in particular those of system dynamics can improve considerably the effectiveness of public policies by testing ex ante their results and their implementation for reducing the risk to fail and to harm society. Furthermore, the State's programming cycle could benefit from an ex ante specification of objectives, hypotheses, relationships, means, and a scrutiny of results, and policy's implementation issues, elements that a simulation model always requires. When well done, simulation models allow to create objective and transparent informative bases on which to set up the decisional processes.

7. References

- ADNKronos. (2012). Giustizia, Italia fanalino di coda in Europa: Lentezza dei processi civili costa 96 miliardi. Retrieved from http://www.adnkronos.com/IGN/News/Economia/Giustizia-Italia-fanalino-di-coda-in-Europa-lentezza-dei-processi-civili-costa-96-miliardi_312857752271.html.
- Autostrade per l'Italia. (2013). Tariffe unitarie di autostrade per l'Italia. Retrieved from http://www.autostrade.it/pop_tariffa_1.html.
- Bancad'Italia. (2005). Un nuovo indicatore di competitività per l'Italia e per i principali paesi industrializzati ed emergenti. *Supplemento al Bollettino Statistico* n. 66, 5 dicembre 2005, Roma.
- Beber, M. (1996). L'interdipendenza, produzione integrata e sovranità nel sistema internazionale. Milan: Jaca Book.
- Bianchi C., & Rivenbark, C. (2012). A comparative analysis of performance management system. *Public Performance & Management Review*.
- Bianchi, C. (2012). Enhancing performance management and sustainable organizational growth through system-dynamics modelling. *Systemic Management for Intelligent Organizations*. Springer-Verlag: Berlin.
- Bianchi, C. (1996). Modelli contabili e modelli dinamici per il controllo di gestione in un'ottica strategica. Milano: Giuffrè editore.
- Bianchi, C. (2010). Improving performance and fostering accountability in the Public sector through System Dynamics modeling: from an external to an Internal perspective. In *Public Sector Applications of the System Dynamics Approach, System Research and Behavioral Science*.
- Borgonovi, E.M. R. (2011). Pubblico e privato: armonizzare gli opposti. *Azienda pubblica*, XXIV(2), (103-121). CGIA Mestre. (2012). Le nostre imprese pagano i tassi più alti di Europa. Retrieved from <http://www.cgiamestre.com/2012/09/le-nostre-imprese-pagano-i-tassi-piu-elevati-deuropa/>.
- Confartigianato. (2012). Alle imprese del Sud un prestito può costare fino al doppio del Nord. Retrieved from http://www.corriere.it/economia/12_novembre_24/confartigianato-banche-costo-danaro_f3e4f7a2-3622-11e2-bfd1-d22e58b0f7cd.shtml.
- Confartigianato. (2012). Un osservatorio sui pagamenti della PA. Retrieved from http://www.ict4executive.it/pmi/news/confartigianato-un-osservatorio-sui-pagamenti-della-pa_43672151357.htm.
- Confindustria. (2012). Confronto europeo prezzi elettricità utenti industriali - 2011. Retrieved from <http://www.confindustria.it/aree/DocumentiENR.nsf/tuttiDoc/317FE44AEC7371F1C125794200568022>.
- De Soto, H. (2000). The mystery of capital: Why capitalism triumphs in the West and fails everywhere else. New York: Basic Books.
- Deloitte. (2012). Taxation and investments in Austria 2012: Reach, relevance and reliability. Wien.
- European Commission. (2012). Piccole imprese: Motore dell'occupazione nell'UE. Retrieved from http://ec.europa.eu/italia/attualita/primo_piano/industria/pmi_motore_it.htm.
- Eurostat. (2012). Average gross annual earnings of full-time employees in Europe.
- Giusti, M. (2006). L'esperienza italiana di delocalizzazione produttiva all'estero tra incentivi e dissuasioni. Università di Pisa.
- Gulick, L., & Urwick, L. (1937). Papers on the science of administration. New York: Institute of Public Administration, Columbia University.

- Horstmann, I. J., & Markusen, J.R. (1996). Exploring new markets: Direct Investments, Contractual Relations, and the Multinational Enterprise. *International Economic Review*, 37: 1-19.
- Ietto-Gilles, G. (2005). Transnational corporations and international production: Concepts, theories and effects. Edward Elgar Publishing.
- Istat. (2013). Anni 2010-2012, PIL e indebitamento AP. Prodotto interno lordo, indebitamento netto e saldoprimary delle Amministrazioni pubbliche. Retrieved from http://www.istat.it/it/files/2013/03/CS_pil_indebitamentoAP_2013.pdf.
- Istat. (2012). Trasporto merci su strada. Retrieved from <http://www.istat.it/it/archivio/52361>.
- Italian Centre for Social Responsibility (ICSR). (2008). Globalizzazione, delocalizzazione produttiva delle imprese italiane e politiche di salvaguardia e valorizzazione dei diritti umani. Milano.
- James, R., Markusen, A. J., Venables, D.E. K et al. (1996). A unified treatment of horizontal direct investment, vertical direct investment, and the pattern of trade in goods and services. NBER Working Papers, 5696.
- Landes, D. S. (1998). The wealth and poverty of nations: Why some are so rich and some so poor. New York: W. W. Norton.
- Mariotti, S., & Mutinelli, M. (2012). Italia multinazionale 2012. Le partecipazioni italiane all'estero ed estere in Italia. ICE-Agenzia per la promozione all'estero e l'internazionalizzazione delle imprese italiane Istituto. Rubettinoeditore.
- OECD. (2010). Modernizing the public administration. A Study on Italy, OECD, 1-132.
- Pezzani, F. (2011). La competizione collaborativa. Milano: Università Bocconi editore.
- Porter, M.E. (1990). The competitive advantage of nations. New York: Free Press.
- Price Waterhouse and Coopers. (2013). Paying taxes 2013. Retrieved from www.pwc.com/payingtaxes or www.doingbusiness.org.
- Rebora, G. (2012). Oltre la crisi fiscale dello stato. Dalle riforme amministrative a un progetto di trasformazione delle pubbliche amministrazioni. *Risorse Umane nella pubblica amministrazione*, 1, 59-92.
- Rebora, G. , & Meneguzzo, M. (1990). Strategia delle amministrazioni pubbliche. Torino: Utet.
- Schönach, K. ,Innerhofer, G. et al. (2003). Confronto degli oneri contributivi e fiscali e delle prestazioni sociali in Austria ed Italia. AFI-IPL e AK-Tirol: Bolzano.
- Simon, H. A. (1964). On the concept of organizational goal. *Administrative Science Quarterly* 9 (1): 1–22. doi: 10.2307/2391519.
- Simon, H. A. (1997). Administrative behavior: A study of decision-making processes in administrative organizations (4th ed.), New York: Free Press.
- Simon, H. A. (1964). On the concept of organizational goal. *Administrative Science Quarterly* (1): 1–22. doi: 10.2307/2391519.
- Simon, H. A. (1976). *The administrative behaviour*. New York: Free Press.
- Sloman, G. G. (2010). *Microeconomia*. Bologna: Il Mulino.
- Sterman, J. D. (2000). Business dynamics: System thinking and modeling for a complex world. New York: Irwin McGraw Hill Editor.
- Weisz, B. (2013). Agevolazioni fiscali per PMI e microimprese nelle ZFU. Retrieved from <http://www.pmi.it/impresa/contabilita-e-fisco/articolo/67314/agevolazioni-fiscali-per-pmi-e-microimprese-nelle-zfu.html>.
- Zanetti, G. (2006). Europa-Italia e resto del mondo: La sfida della competitività, relazione alla XLIII riunione scientifica - Società Italiana di statistica, 14-16 giugno, Torino.